CONSUMER PREFERENCES FOR LOIN CHOPS FROM LAMB CARCASSES OF DIFFERENT WEIGHT AND FATNESS

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SUMMARY

Loin chops from lamb carcasses of different weights and fatness were delivered to a representative sample of households in Brisbane and Melbourne. Food buyers/cooks rated the chops for the amount of meat and fatness using nine point scales.

Mean cooks' ratings (MCR) for the amount of meat on loin chops exhibited strong linear relationships with hot carcass weight (HCW) and the loin eye muscle area (EMA) of the 13th rib loin chop. These relationships predicted that consumers preferred the EMA of loin chops from carcasses with EMA of 17.5 cm² at the 13th rib.

MCR for fatness exhibited strong linear relationships with carcass fat measurements at the 12th rib (GRFAT) and over the EMA at the 13th rib (CFAT). Consumers preferred the fatness of chops from carcasses with GRFAT of 7mm or CFAT of 2mm. (Keywords: consumer preference, lamb, loin chops, carcass weight, fatness).

INTRODUCTION

The fatness and amount of meat on lamb cuts have been shown to influence their visual appeal to Australian consumers (Furnival et al. 1977; Thatcher and Couchman 1983; Hopkins et al. 1985) and to be major factors in affecting consumers' purchasing behaviour (Hopkins and Congram 1985). Furnival et al. (1977) and Thatcher and Couchman (1983) used a direct comparison method for loin chops and found that, in general, chops with 2.5-3.0mm of fat cover and the largest eye muscle area (EMA) were preferred by most consumers.

Harris (1982) highlighted the need for an objective carcass description system to help relay consumer requirements through the marketing chain. Using the Exports (Meat) Regulations trade descriptions for lamb, Hopkins et al. (1985) demonstrated that most consumers preferred loin chops from lamb carcasses of Fat Class 2 (GR fat depth 6-10mm) and Weight Class X (heavier than 20kg). However, no attempt was made to define the "ideal" lamb carcass for loin chops within narrower weight and fat ranges or to compare the results to those of the previous studies where only fat cover and EMA were examined.

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This paper presents mean consumers' ratings for lamb loin chops of differing fat cover and EMA from the most recent study (i.e. Hopkins et al. 1985) and attempts to define the weight and fatness of a lamb carcass which would, on average, satisfy consumer requirements for the fat cover and amount of meat on loin chops.

MATERIALS AND METHODS

A total of 300 lamb carcasses (head off, kidney and channel fats in) were collected from commercial abattoirs and loin chops prepared for consumer evaluation as previously described (Hopkins et al. 1985). Hot carcass weight (HCW) was recorded and objective measurements of fat depth (GRFAT), using the cut and measure technique, were made at the GR site (i.e. 12th rib, 11cm from midline). Most carcasses were within 6 - 10mm GRFAT independent of HCW. However, carcasses with GRFAT greater than 10mm were also collected within the HCW range of 16.5 - 20.0kg.

Frozen loin chops which had been cut with a band saw at the 13th rib were placed on a photocopier and reproduced. The photocopy of the loin cross section was used to measure EMA, using a planimeter, and average fat depth over the eye muscle (CFAT). Fat depth was measured at points located one-third and two-thirds across the width of the eye muscle using callipers.

A representative sample of 360 households, 180 in both Brisbane and Melbourne, were selected from those which had indicated they would like to participate in the study during a previous interview for a consumer survey (Hopkins and Congram 1985). Households were selected with the constraint that the household contained at least one adult who ate lamb at least once per month.

Samples of loin chops from carcasses of different weight and fatness were delivered weekly to each household over an eight week period. The meat buyer/cook in each household was asked to score the appearance of the raw meat, in terms of fatness and amount of meat, on rating sheets supplied with each sample. Each attribute was scored on a nine-point, five centred, hedonic scale.

Cooks' ratings for the loin chops were grouped, and averaged, for each carcass measurement. The data were subjected to simple regression analyses to determine the relationship between mean cooks' ratings (MCR) for the amount of meat on loin chops and HCW and EMA as well as the relationship between MCR for fatness and GRFAT and CFAT.

RESULTS

The relationship between MCR for the amount of meat on loin chops and HCW is presented in Fig. 1. Extrapolation of the relationship indicates that meat buyers/cooks would, on average, consider loin chops from lamb carcasses of 31kg to have the "ideal" amount of meat (i.e. a mean rating of 5.0 units).
The relationship between MCR for the amount of meat on loin chops and EMA of chops at the 13th rib is presented in Fig. 2. Extrapolation of the relationship indicates that, on average, meat buyers/cooks would consider loin chops from lamb carcasses with a loin EMA of 17.5 cm² to have the "ideal" amount of meat (i.e. a mean rating of 5.0 units).

The relationship between MCR for fatness of loin chops and GRFAT is presented in Fig. 3. The relationship indicates that, on average, meat buyers/cooks would consider loin chops from carcasses with GRFAT of 7 mm to have the "ideal" level of fatness (i.e. a mean rating of 5.0 units).

The relationship between MCR for fatness of loin chops and CFAT is presented in Fig. 4. The relationship indicates that meat buyers/cooks would consider loin chops from carcasses with an average fat cover of 2 mm over the eye muscle at the 13th rib to have, on average, the "ideal" level of fatness (i.e. a mean rating of 5.0 units).
DISCUSSION

The results clearly demonstrate that consumers prefer loin chops from heavy, lean lamb carcasses. The preference by consumers for the amount of meat on loin chops from carcasses of about 30kg has also been demonstrated in the United States (Southam and Field 1969). Additionally, this work supports the findings of Thatcher and Couchman (1983) that consumers prefer loin chops with an EMA of 17.5cm². Nevertheless, this paper only considers the ratings of food buyers/ cooks and there is some evidence (Hopkins et al. 1985) which suggests that consumers overall would prefer loin chops with an EMA larger than that preferred by cooks.

Consumers prefer the fat cover on loin chops from lamb carcasses with GRFAT of 7mm or CFAT of 2mm. The latter result differs from the findings of Furnival et al. (1977) and Thatcher and Couchman (1983) who suggested that consumers preferred a fat depth of 2.6 and 3.0mm, respectively, over the loin eye muscle. However, both these earlier studies used consumer panels which were not representative of the urban consumer population.

Estimates of the types of lambs sold through Victorian saleyards indicate that lambs with carcasses heavier than 22kg are relatively rare (D. Goldsworthy pers. comm.). If the lamb industry is to cater for consumer requirements for loin chops, it is essential that practical and economical methods for producing heavy, lean lambs be identified.

REFERENCES